FINAL DECISION DOCUMENTATION and DECISION RATIONALE

Sinker Swim Timber Sale Harvest and Riparian Restoration Plan

Environmental Assessment Number OR080-2001-20

USDI - Bureau of Land Management
Oregon State Office, Salem District, Cascades Resource Area

Sections 27, 34, 35, Township 8 South, Range 3 East Willamette Meridian

Marion County, Oregon

I. BACKGROUND

Starting in 1999 and through 2002 an IDT (interdisciplinary team) analyzed approximately 480 acres managed by the Cascades Resource Area, Salem District, BLM (Bureau of Land Management) for a timber harvest proposal. These stands analyzed are located within the Little North Santiam River Watershed. An environmental analysis was conducted and documented in the Sinker Swim Timber Harvest and Riparian Restoration Plan Environmental Assessment (EA) Number OR080-2001-20. Approximately 327 acres were dropped from further analysis at various stages in the process, as described in section 2.3. of the EA. The EA documented a proposal to partial cut harvest approximately 170 acres, including: 162 acres within the GFMA (Matrix) Land Use Allocation (LUA) and thin approximately 8 acres in Riparian Reserves in conjunction with the timber sale. The proposed action also included topping trees to create snag habitat in the uplands and Riparian Reserve, felling trees to create Class 1 coarse woody debris (CWD) in the uplands and Riparian Reserve, and felling trees to restore oak woodland habitat. Temporary road construction, road renovation, and road decommissioning were also part of the proposal. A Finding of No Significant Impact was signed on August 29, 2002 and the EA and FONSI were made available for public review on September 4, 2002.

Since the release of the EA, the IDT has identified the need to update some information after further field reconnaissance. Changes relating to site preparation have been documented in a separate Site Preparation Change Rationale which is attached to the EA. Additional changes to the proposed action are described in the following section, which also describes any changes to the analysis and determination of effects as presented in the September 4, 2002 EA.

II. MODIFICATIONS TO THE PROPOSED ACTION / CHANGES TO AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

1. Changes to the Proposed Action

a. *Unit acres* - Unit acres have been finalized based on unit traverse and sale layout.

Table 1a shows the changes in unit numbers and acres.

Table 1a: Changes in Unit Numbers and Acres

Unit Numbers		Harvest Method	Acres		
Contract	**EA**		**Contract**	**EA**	**Change**
1	A	Partial Cut - Commercial Thinning	34	33	1
2	B	Partial Cut - Commercial Thinning	37	32	5
3	C	Partial Cut - Commercial Thinning	6	7	(1)
4	D	Partial Cut - Thinning/Individual Tree Selection	39	39	0
5	E	Partial Cut - Individual Tree Selection	3	10	(3)
6			4		
7	PQ	Partial Cut - Commercial Thinning	23	29	(6)
7	R6	Partial Cut - Riparian Thinning	3	2	1
8	R	Partial Cut - Commercial Thinning	3	12	(9)
8	R7,8	Partial Cut - Riparian Thinning	1	6	(5)
Partial Cut (PC) Commercial Thinning - units 1, 2, 3			149	*162*	(13)
Partial Cut (PC) Thinning/Individual Tree Select - Riparian Reserve			4	*8*	(4)
Total			153	170	(17)

b. *Timber volume* - Final timber volume estimates for the sale have been determined through a field timber cruise. From Matrix lands the Cruised volume is 2903 Thousand Board Feet (MBF), an increase of 3 MBF over estimates made for the EA. An additional 40 MBF to be removed was cruised in Riparian Reserve a decrease of 60 MBF over estimates made for the EA. Appendix A shows unit volumes.

c. *Logging Systems* - Ground based logging increased from 90 acres estimated in the EA to 120 acres in the contract. Cable yarding decreased from 80 acres estimated in the EA to 33 acres in the contract.

d. *Road Work* - The EA made estimates as to the amount of road construction, renovation, decommissioning and blocking that would be done. The Actual amounts vary from those amounts identified in the EA. The estimated and actual figures are listed and compared in the table below.

Description	Actual	EA	Change	% Change
Road Construction	5,284	5300	(16)	(0.3%)
Renovation & Improvement	43,718	42,200	1,518	3.6%
Decommissioning Existing	1969	2,000	(31)	(1.6 %)
Blocking Existing	4,462	5,000	(538)	(10.8 %)

e. *Fuels Treatment* – The original EA called for slashing all brush greater than three feet in height and broadcast burning units A through E. A supplemental analysis was prepared (Site Preparation Change Rational) to change this treatment from broadcast burning to piling. Areas to be harvested with ground based equipment are now to be machine piled, areas being cable yarded are to be hand piled. The only brush species to be slashed is vine maple. This change was reviewed by the IDT team.

2. Changes to the Project Design Features/Mitigation Measures

a. All design features and mitigation measures are incorporated into the timber sale contract.

3. Changes to the Environmental Consequences

a. Soils and Water

i) Cable Yarding: Reducing the number of cable yarded acres from 80 in the EA to 33 in the timber sale contract would reduce non-mitigated compaction and loss of productivity on the proposed sale area proportionally.

ii) Ground Based Yarding: The timber sale contract increases the number of ground based yarded acres from 90 in the EA to 120 in the timber sale contract. The increase is due to more of the area being less than 35% slope than originally estimated in the EA. The Best Management Practices identified in the EA would be implemented in the timber sale contract. The result would limit compaction and loss of productivity to less than ten percent of the area. This is within parameters analyzed in the RMP.

iii) Roads: The timber sale contract contains less blocking of existing roads that originally estimated in the EA. The amount of change of Road Construction, renovation & improvement

and decommissioning is insignificant as compared to the original estimate in the EA. Impacts due to all forms of road management will be similar or less than those identified in the EA.

iv) Water Quality: No change in water quality or riparian shade would be anticipated under the listed modifications.

v) Cumulative Impacts: Cumulative impacts would be lower under this modification than originally analyzed in the EA. When compared to the EA, changes in Water Available For Runoff (WAR), and Equivalent Clearcut Acreage (ECA) would be reduced proportional to the reduction in acres.

III. DECISION

Based on site-specific analysis in the Environmental Assessment, the supporting project record, management recommendations contained in the Watershed Analysis (Little North Santiam) dated December, 1997, as well as the management direction contained in the RMP (*Salem District Resource Management Plan*), dated May, 1995, I have decided to implement the Alternative 3 (Proposed Action) described in the Sinker Swim Timber Harvest and Riparian Restoration Plan Environmental Assessment (EA # OR080-01-20) (EA pp. 6-13, with the modifications in Section II -1 and 2, above, hereafter referred to as the "selected action " (see attached map).

The following is a summary of this decision.

1. Harvest approximately 153 acres from GFMA and Riparian Reserve Land Use Allocations for an expected yield of 4649 hundred cubic feet (CCF) (2943 MBF). The following is a description of harvest acres and timber volumes by harvest method.

    a. *Commercial thinning* (Partial Cut) of approximately 149 acres of Matrix lands from 8 units. It is expected that this will yield approximately 4571 hundred cubic feet (CCF). Within the Matrix thinning units 6 patch cuts ranging in size from ¼ to 1 ½ acres will be cut. A total of 6 acres will be included in patch cuts.

    b. *Riparian Reserve:* Individual tree selection thinning of approximately 4 acres within Riparian Reserve in units 7 and 8. It is expected that this will yield approximately 78 hundred cubic feet (CCF).[1]

2. Tree Topping: Approximately 250 trees would be topped within the project area for snag creation.

3. Road Maintenance and Renovation: Road maintenance and Renovation (brushing, blading, resurfacing, spot rocking, culvert installation, replacement and repair) would occur on approximately eight miles of existing road. These activities would take place within the current road prism.

4. Road Decommissioning & Blocking: Approximately 1969 feet of existing roads would be decommissioned. An additional approximately 4,500 feet of existing roads would be blocked. Approximately 5,300 feet of road to be constructed would be decommissioned after completion of logging operations. Decommissioned roads would also be blocked.

5. Oak Woodland Restoration. Approximately two acres of Oregon White Oak, *Quercus garryana*, habitat are to be maintained/restored by falling coniferous trees that are encroaching upon the oak woodlands and shading out the oaks. This work will be done in a separate project from the tree thinnings described above.

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[1] Does not count toward Allowable Sale Quantity (ASQ)

6. Riparian Reserve Enhancement. Conifer snags will be created within the Riparian Reserves by girdling selected trees. Approximately five trees per acre will be girdled within Section 34 and 35 and approximately ten trees per acre will be girdled in Section 27. This work will be done in a separate project from the tree thinning project.

7.Compliance with Direction

The selected action is consistent with applicable land use plans, policies, and programs

a. Programmatic documents covering this proposal are the:

- *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (ROD, January, 2001).*
- *Salem District Resource Management Plan (May 1995),*
- *Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (April 1994),* and the
- *Western Oregon Program-Management of Competing Vegetation Record of Decision (August 1992).*

All of these documents may be reviewed at the Cascades Resource Area office.

b. Monitoring activities related to this sale will be done as described in Appendix J of the RMP (May, 1995*).*

IV. DECISION RATIONALE

Considering public comment, the content of the EA and supporting project record, the management recommendations contained in the Little North Santiam River Watershed Analysis, and the management direction contained in the RMP, I have decided to implement the selected action as described above. My rationale for this decision follows:

The selected action addresses the identified purpose and need for action in that it will:

a. Contribute to meeting the need for a sustainable supply of timber by immediately making over 4,500 CCF of Matrix timber available and managing these forest stands to provide a long term sustainable supply of timber.
b. Contribute to meeting the need for a healthy forest ecosystem by speeding the development of desirable ecosystem components that are currently lacking due to past management practices.
c. Adequately protect the watershed while meeting other objectives.
d. Not preclude the recovery of any listed species nor contribute to the need to list a species.

The "No Action" alternative, Alternative 2 – "Regeneration Harvest", and alternatives, which were dropped from further consideration during the development of the proposed action, would not satisfactorily fulfill the Purpose and Need for action, EA p. 1-3.

V. PUBLIC INVOLVEMENT/ CONSULTATION/COORDINATION

1. Scoping

A description of the proposal was included in the Salem Bureau of Land Management *Project Update* which is mailed to more than 900 individuals and organizations four times each year. A letter asking for scoping input on the proposal was mailed on August 24, 1999 to adjacent landowners and individuals who have expressed an interest in management activities in the resource area as a whole or in this drainage. Letters were also sent to the Confederated Tribes of Grande Ronde; Confederated Tribes of the Warm Springs Reservation of Oregon; Federal, State, County and local government organizations; Salem municipal water officers; and Special Interest groups.

2. Comment Period and Comments

The EA was mailed to approximately 44 agencies, individuals and organizations on September 3, 2002. A legal notice was placed in local newspapers soliciting public input on the action from September 4 to October 4, 2002. Five comment letters were received:

Responses to these comments can be found in the *Response to Public Comments Received on the Sinker Swim Timber Harvest and Riparian Restoration Plan* in the Sinker Swim project file and are also attached as an appendix to this Decision Record.

3. Consultation/Coordination

The Sinker Swim timber sale was submitted for Informal Consultation with U.S. Department of Commerce, National Marine Fisheries Service (NOAA Fish), as provided in Section 7(a)(2) of the Endangered Species Act of 1973 and the Magnuson-Stevens Act section 305 (b)(2). NOAA Fish concurred with BLM's determination that the Sinker Swim project "may affect but is not likely to adversely affect" UWR steelhead or UWR Chinook salmon.

The Sinker Swim timber sale was submitted for Formal Consultation with U.S. Fish and Wildlife Service as provided in Section 7 of the Endangered Species Act of 1973 (16U.S.C. 1536 (a)(2) and (a)(4) as amended). Consultation was completed on February 14, 2000 (Reference number 1-7-00-F-155). As a result of consultation, the U.S. Fish and Wildlife Service found that the sale would not likely jeopardize the continued existence of the spotted owl.

Extensive coordination and cooperation with the City of Salem, Water Operations Division was conducted. City Water Department employees were included in all Interdisciplinary Team meetings and field trips.

VI. CONCLUSION

I have determined that change to the Finding of No Significant Impact (FONSI - August 2002) for the Sinker Swim Timber Sale is not necessary for these reasons:

The existing EA for the Sinker Swim Timber Sale, along with additional information contained in this document, fully covers the project. There are no significant new circumstances or facts relevant to environmental concerns and bearing on the modification to the proposed action or its impacts, which were not addressed in the EA. The action is within the scope of the alternatives identified in the original EA, and the environmental impacts are within those described in the original EA and are less than or the same as those anticipated for the proposed action in that assessment.

Protests

In accordance with Forest Management Regulations at 43 CFR 5003.2, the decision for this timber sale will not become effective or be open to formal protest until the Notice of Sale is published "in a newspaper of general circulation in the area where the lands affected by the decision are located". Protests of this sale must be filed within 15 days of the first publication of the notice. For this project, the Notice of Sale will be published in the *Stayton Mail* on or around February 26, 2003. The planned sale date is March 26, 2003.

Contact Person

For additional information concerning this decision or the BLM protest process, contact Randy Herrin (503) 315-5924, Carolyn Sands (503) 315-5973 or Bob Hershey (503) 315-5931, Cascades Resource Area, Salem BLM, 1717 Fabry SE, Salem, Oregon 97306.

Approved by: _____ Feb. 20, 03

William B. Keller — Date

Cascades Resource Area Field Manager

Sinker Swim

Appendix A

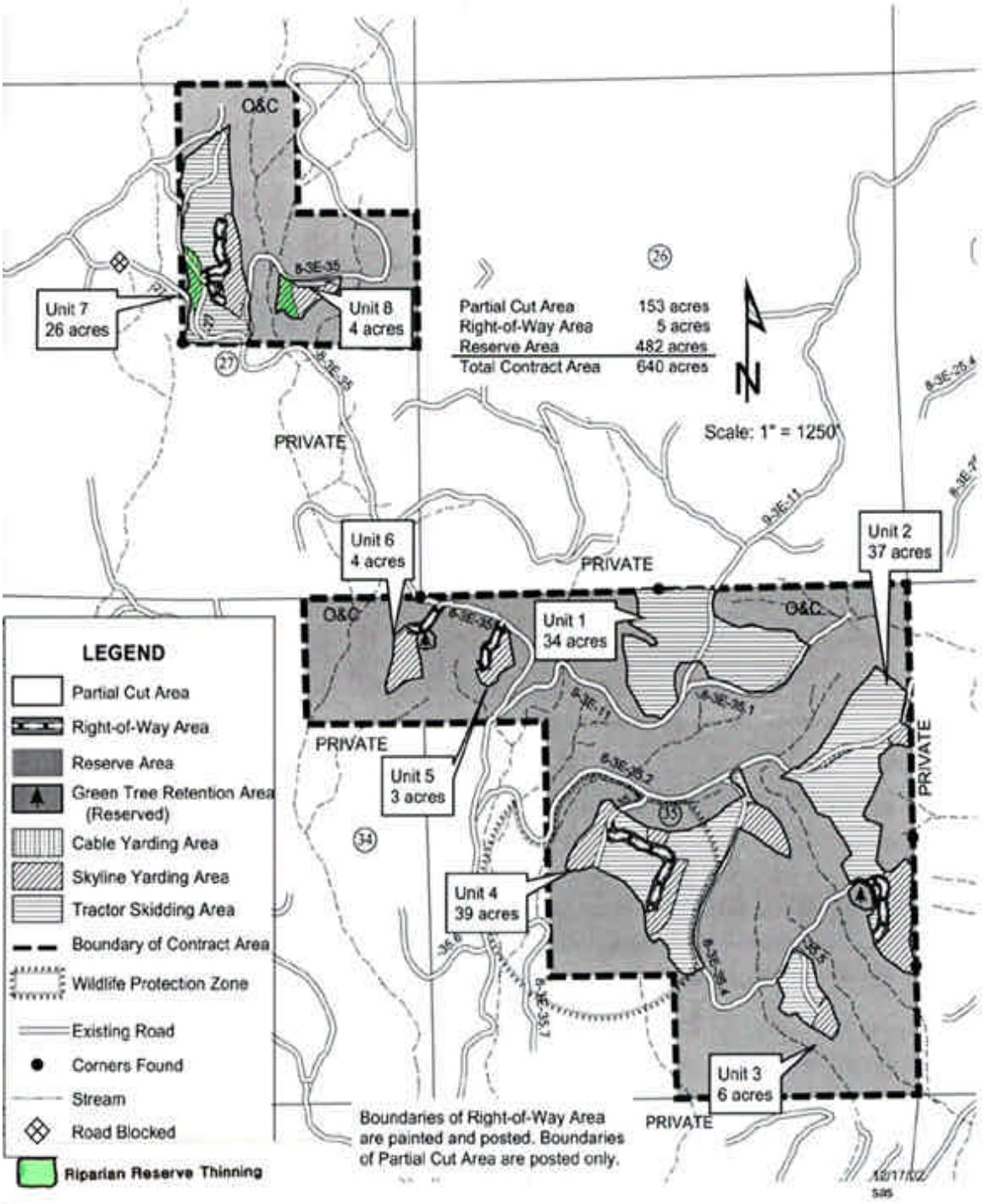
Timber Harvest Volumes by Unit

Unit Numbers		Volume to be Removed	
Contract	EA	MBF	CCF
1	A	661	1054
2	B	881	1348
3	C	136	201
4	D	621	937
5	E	39	65
6		52	82
7	PQ	219	418
	R6	27	54
8	R	39	71
	R7, R8	13	24
R/W Unit 2	B	53	81
R/W Unit 4	D	92	137
R/W Unit 5	E	45	68
R/W Unit 6	E	33	51
R/W Unit 7	PQ	32	58
Total		2,943	4,649

Sinker Swim

Appendix B

Final Project Map



Appendix C

Response to Public Comments Received on the Sinker Swim Timber Harvest and Riparian Restoration Plan

In following are comments that the BLM received from the public after public review of the Environmental Analysis (EA). The comments, (in normal type), may have been paraphrased for clarity or conciseness, but the complete text of the comment was available to the IDT making the response. The full text of the comment letters is available in the Sinker Swim EA file. The IDT response is in *italics*.

Commenter: Northwest Environmental Defense Center

Impacts due to road construction not fully analyzed because of assumption that decommissioning of existing roads will offset new construction. Does not consider the cumulative impact while new roads are constructed before old roads are decommissioned. Does not consider impacts due to tractor skid trails.

Road construction was analyzed to be of minimal impact, since all will be short-term duration (ripping will follow completion of timber harvest activities). In addition, decommissioning of existing roads will lessen the long-term road impacts. Cumulative impact of new roads was not considered, due again, to short-term duration of these roadways. Impacts of tractor skid trails were stated as being less than 10% of the area of each harvest unit (as stated in Section 4.1.1 of the environmental analysis). This figure (<10%) is the best management practice for tractor yarding, as stated in the Salem District Record of Decision and Resource Management Plan (RMP) in Appendix C, Paragraph I.B.3. : The tractor skid trails are designed to adhere to Best Management Practices and the Standards and Guidelines contained in the Salem Resource Management Plan. The project plans to reutilize existing skid trails where feasible and consider the construction of additional skid trails in locations approved by the BLM on slopes generally less than 35%. Skid trails are planned for construction and use only during seasonal periods of dry soil conditions. Winching logs up to 75 feet from skid trails is planned to minimize the frequency of skid trails to confine the total area of soil displacement, compaction or puddling to less than 10%. The timely construction of effective erosion control structures on skid trails is planned to mitigate potential increases in short term surface erosion caused by the displacement of the duff layer and desirable skid trail strength.

Skyline yarding may cause irreparable damage to residual trees

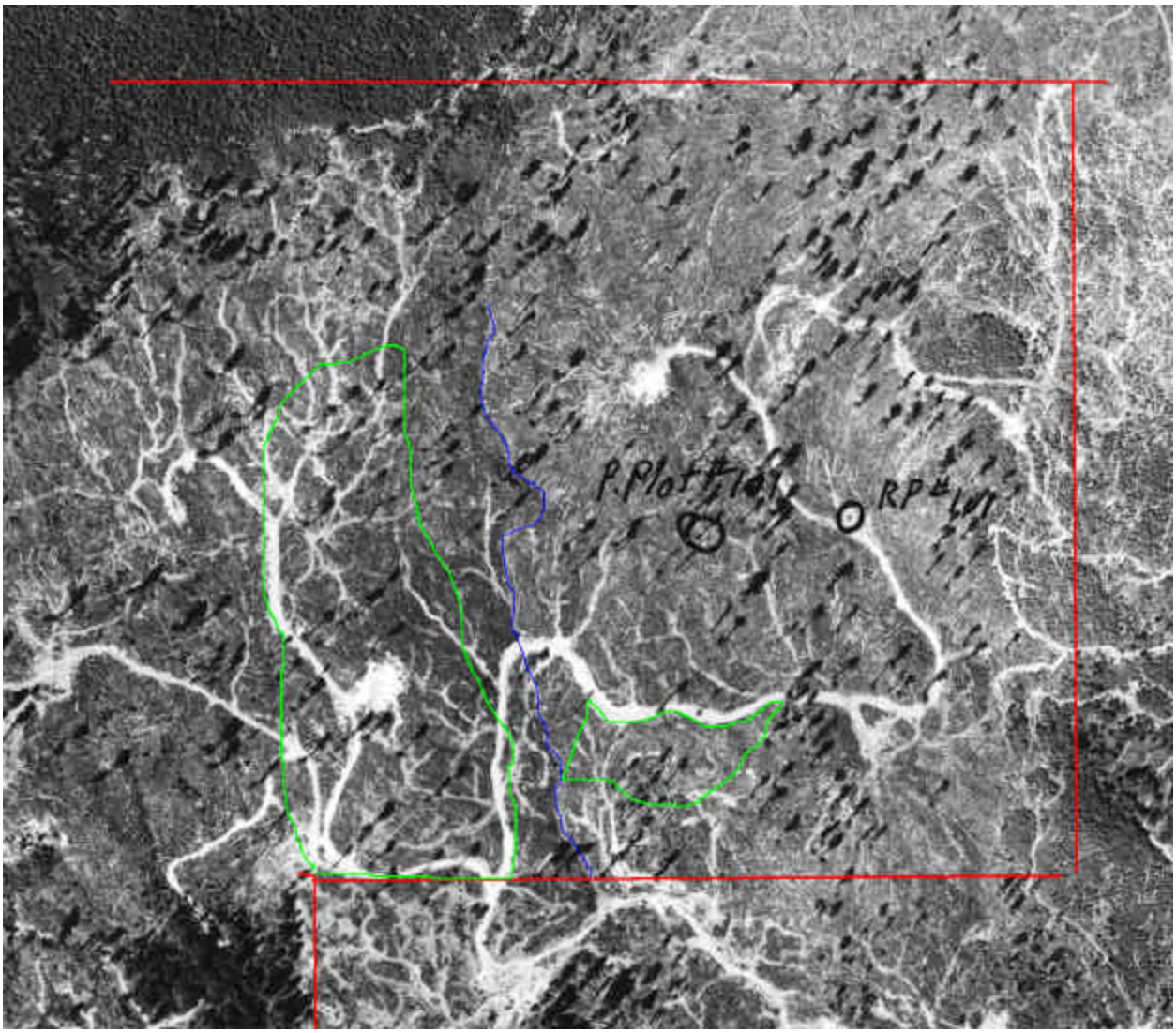
Skyline yarding and lateral yarding may cause the skyline cables, the skyline carriage and/or the payload logs to hit and rub residual trees in thinnings, mechanical damage. Such mechanical damage during skyline yarding may loosen or remove bark from the impact area of the prescribed residual tree. Several mitigation measures are incorporated to Sinker Swim to minimize the risk and exposure of mechanical damage during skyline yarding. Prohibiting operations during seasonal periods when the bark of residual trees is loose will minimize the risk of mechanical damage. The exposure of residual trees to the risk of mechanical damage is considered by the approval of landings and tailtrees by the BLM which are on the fall line. Road construction is planned to provide skyline landing locations that will maximize yarding along fall lines. The timber sold is required to be directionally fallen to the yarding lead, which is expected to minimize risk and exposure of unnecessary mechanical damage by reducing the need to pivot logs into the lead using residual trees. The judicious use of rub trees along skyline corridors is planned to restrain the skyline cables, the skyline carriage and the payload logs to

within each corridor. Residual tree damage is minimized by requiring a carriage capable of lateral yarding from a fixed position on the skyline confining each turn of to the same skyline path after lateral yarding. The concentration or frequency of skyline corridors is minimized by requiring a carriage capable of lateral yarding up to 75 feet from the skyline. The anticipated mechanical damage to rub trees may increase desirable stand diversity, provide for snag recruitment and wildlife structure.

Tractor yarding will cause soil compaction.
Tractor yarding will cause soil compaction, as identified in the EA, but will not exceed 10% of the area of each harve unit (as per Salem District RMP reference stated above).

Tractor skid trails on not over 10 % of the land will be a significant impact and should be factored into a cumulative analysis of roads.
As stated above, the Salem District RMP considers <10% areal extent of skid rods plus landings within each harvest unit to be a best management practice for maintaining or improving water quality and soil productivity, while meeting other resource objectives. The proposed project will meet or exceed this guideline.

EA does not disclose current extent of soil displacement; compaction and disturbance in the planning area, which makes it impossible to determine whether soil disturbance will be minimal.
The historic extent of soil displacement, compaction and disturbance was extensive, since a majority of the project ar was previously harvested (either by clearcutting or commercial thinning) during the 1950's to about 1970. Most of these timber sale entries were accomplished using tractors (regardless of slope), but there was no limit to the amount skid trail construction allowed. Consequently, nearly every tree stump had a skid trail running to it (see attached 19 aerial photo of Section 27 of the project area). Analysis of this earlier aerial photo shows that in unit PQ, existing sk trails cover nearly 40% of the harvest unit. Because this proposed action will restrict tractor skid trails to a maximu of 10% areal extent within each harvest unit (as per Salem District RMP of best management practices) and the existi skid roads will be reused in the implementation of this project (as much as possible), further soil disturbance will be very minimal.



1955 Aerial Photo T. 8 S., R. 3 E., NE ¼ Sec. 27

EA states moderate to high hazard of wildfire which is a significant impact requiring an EIS.
The EA states that the fire hazard (not risk) will leave a moderate to high hazard of wildfire. This is primarily due to an increase of available fuel in the 10 and 100 hour time lag fuel (1/4"-3") classifications. This increase in hazard is mitigated in the short term because fuel continuity is broken up with yarding trails and riparian reserves. In addition long term hazard will decrease with the rapid decomposition of the fuel in these small size classes.

Fire risk, or the probability of ignition, has been rated as low. It is rated low because the two primary sources of ignition, human and/or natural causes have little impact in the project area. Human activity in the sale area is low because the sale is behind locked gates. Lightning activity is low to non existent because of its geographical location.[The information on lightning is located on page 29 of Fire Ecology Of Pacific Northwest Forests by James K. Agee.] What little lightning that does occur in this area is generally accompanied with a wetting rain, further reducing the risk of fire through natural causes.

BLM has an obligation to assess effects of a wildfire as result of the proposed project.
There is confusion with this issue between "Fire Risk", which is the probability of ignition, and "Fire Hazard", which relates to the availability of combustible fuels. The EA (p. 58) addresses fuel loading or hazard and not risk. BLM stated in the EA that available fuels after operations would leave a moderate to high hazard of wildfire. Fire risk was not addressed, however, the probability of ignition and fire spread is low. This conclusion is made based upon the following:

- *The potential sources of ignition in this area are humans and lightning. Human (non logging- related) caused ignitions are limited in the sale area because access is restricted by locked gates. Lightning activity is low to non-existent because the sale location is not close to the thunderstorm track (lightning ignition sources) in the Cascade Mountains. Page 29 of Fire Ecology Of Pacific Northwest indicates that the sale area is located in a zone which experiences from 1 to 2 lightning storms per year per 40,000 ha. (98,839 acres).*
- *When lightening occurs in the sale area it is usually associated with wet systems that do not produce fires.*
- *Fuel continuity is broken up with the presence of tractor and cable yarding roads, wildlife and riparian reserves both within and adjacent the harvest area.*

This low fire risk is not expected to change in the future. Having a moderate to high hazard but a low risk of ignition result in a low probability of a wildfire resulting from this project.

EA states that prescribed burning will cause nitrogen loss but does not state which alternative would be used to replace the Nitrogen.
Burning, other than pile burning, has been dropped out of the proposal.

EA does not discuss the effect that logging and compaction will have on erodability ratings. The ratings will likely rise after logging and become a cumulative impact which the EA has not considered.
Erodability ratings were discussed in the Sinker Swim Proposed Timber Sale Soils Report. They were calculated from the Soil Survey of Marion County Area, Oregon (1972) and are based upon the potential for surface soil erosion from disturbance (either logging, plowing, etc.). These values do not change following disturbance; hence they do not affect cumulative impact. For the proposed timber sale area, all soil series were rated as low, except for Henline, which was rated as moderate erodability.

EA states that residual slash will reduce erosion, but prescribed burning will remove much of this slash making it not available for reducing erosion.
Prescribed burning, other than limited pile burning, has been dropped out of the proposal.

EA contradicts itself by claiming there will be an increase in turbidity resulting from erosion especially during a heavy rain and also claiming that there will be no measurable increase in turbidity.
The EA does not claim there will be an increase in turbidity resulting from erosion. The EA on Pg 43 indicates there is a potential for increased turbidity associated with winter hauling. Limiting hauling to the dry season eliminates this risk.

EA does not consider combined increases of probability of sediment reaching streams due to both harvesting and burning, it only considers them separately. The cumulative effects must be examined.
The statement of probability of sediment reaching streams with burning assumes the area was first harvested and therefore is a "cumulative" probability. As stated on page 44 of the EA, documentation of the WEPP model is available at the following web site: http://fsweb.moscow.rmrs.fs.fed.us/fswepp. In addition, broadcast burning has been eliminated from the proposed action.

EA does not acknowledge potential for flooding in Western Cascades.
The EA does not acknowledge this because we know of no scientific evidence to support the claim that flood potential in the Western Cascades is higher, or lower, than any other region. If the reader has studies which document this please forward them to us or provide a reference.

EA fails to consider cumulative effects of soil compaction, prescribed burning
The historic extent of skid trails, within a majority of the proposed harvest units, is approximately 40% of the area (refer to attached copy of 1955 aerial photo). Most of this affected area has at least partially recovery, as witnessed by the trees growing within the old skid trails. Recovery from compaction is a complex process that is dependent upon a number of factors, such as weather, soil structure, and degree of compaction to begin with. Complete recovery of compaction takes up to several decades (Froehlich, OSU, 1992). It is generally thought that recovery would be complete within approximately eighty years, with the greatest amount of recovery occurring within the first decades of the recovery period. Since these areas were logged thirty to fifty years ago, it can be projected that compacted areas have recovered by more than fifty percent. This proposal (using ground-based logging equipment) will impact less than 10% of the areal extent within each harvest unit. Since existing skid roads will be reused, whenever possible, further soil disturbance is expected to affect less than 5% additional area. Ripping of skid trails to reduce compaction would generally occur after final harvest. Ripping is not being recommended at this time because of the potential damage to the tree roots of the remaining trees. Prescribed burning, except for pile burning, has been deleted from the proposed alternative.

The EA fails to examine the possibility of blowdown in the harvested area.
Douglas-fir is the predominant tree species in this sale and it is a deep rooted species not susceptible to blowdown in a fully forested setting. The only appreciable amounts of blowdown are from catastrophic wind events, which will cause damage regardless of species or treatments applied. The treatments to be applied will increase rooting of all residual trees, which will make them more resistant to blowdown. Under the conditions of the proposed action significant amounts of blowdown would be unlikely because; the project area is not highly exposed and historically has not been susceptible to blowdown, the harvest prescription does not leave individual trees exposed where they would be more likely to blow over, the majority of the stand structure will remain intact and the trees will stand together as a block forcing winds to ride over the forest stand rather than focusing the entire force of the wind on individual trees.

EA does not disclose how many board feet will be cut and does not clearly identify or describe what trees would be left after harvest.
The EA identifies the anticipated amount of harvest in Table 3, EA page 14 as being 3,000MBF. Thinning would be from below, which would remove the smaller suppressed trees. Minor species trees, including hardwood trees and deformed trees, as well as the largest trees would be targeted to be retained.

EA says LSOG habitat (reference to FEMAT) will be cut in sections 34 & 35 but does not mention mitigating measures to preserve this habitat.
EA discusses harvesting Late Successional Habitat. No LSOG habitat will be cut.

EA does not specify how far above the 15% late successional habitat guideline will remain after cutting.
This watershed contains significant amounts of forested late successional forestlands already in reserves. Fifty-two percent of the federal lands within the watershed are late successional habitat that is already in reserves. In addition, the proposed action only thins the present stands. It will not remove any stands. Although the remaining stands will contain fewer trees after operations, they will still be classified as late successional stands.

Proposed Action will contribute to loss of species diversity by simplifying stands through commercial thinning.
The thinnings done during the 1970's were designed to promote growth upon Douglas fir trees at the expense of all other species. At the time it was felt that this was the best way to achieve that greatest amount of high quality timber. This proposed action is designed to maximize species diversity. Minor species and hardwoods are selected for retention over Douglas fir, trees with defects are retained, snags are retained where possible or created after operations. These steps help to develop the characteristics of an older forest.

The EA does not provide evidence that mitigating measures will stop introduction of weed or non-native plant species.
The noxious weeds identified during the botanical surveys of the project area are all common components of the roadside plant community in western Oregon. Due to the nature and method of their spread, it is not possible to stop or prevent their encroachment into areas that have had soil/ground disturbance due to man or nature.

As far as the introduction of noxious weeds or non-native plant species not already within the project area, the following is included in the proposed Sinker Swim timber sale contact " All earth moving equipment is to be cleaned and free of soil, brush, weeds and any part thereof before entering B.L.M. lands to prevent the spread or introduction of any noxious weed species."

BLM must consider indirect effects of their action, 36 CFR 1508.8.
The BLM is not governed or restricted by 36 CFR. Those sections pertain to the Forest Service.

EA does not describe in detail how large buffers protecting S & M fungi will be nor does it provide any evidence as to their potential success in protecting them. In addition, it is unlikely that all the species were found during surveys.
Buffer Size
The following is from the Supplemental Biological Evaluation written in December 2001

Unit A
Recommendations
One Gyromitra infula (S&M-B) was found during the fall 2000 fungi surveys of this unit. Due to the high likelihood that the Gyromitra infula identified at this site along with its habitat will be adversely impacted due to planned activities it is recommended that the area below road 8-3E-35.1 be removed from the proposed action. This area along with adjacent riparian buffers should provide a suitable protection buffer around the fruiting site of this fungi.

Actions

The area below road 8-3E-35.1 and between adjacent riparian buffers has been flagged and is now outside of the proposed action. This area along with the adjacent riparian buffer provides a sufficient protection buffer to the Gyromitra infula at this location.

Unit B

Recommendations

Two Sowerbyella rhenana (S&M-B) and one Ramaria araiospora (S&M-B) were found during the fall 2000 fungi surveys of this unit. Due to the high likelihood that the Sowerbyella rhenana and Ramaria araiospora identified at this site along with their habitat will be adversely impacted by the planned activities it is recommended that a protection buffer sufficient to protect each site be established.

Actions

Site 1 Sowerbyella rhenana : The northern portion of this unit has been flagged and is now outside of the proposed action. This area along with the adjacent riparian buffer provides a sufficient protection buffer to the Sowerbyella rhenana at this location.

Site 2 Sowerbyella rhenana : In the area to the east of this fungi site (Unit B side), an approximate 200' radius buffer was established. This buffer along with the adjacent riparian reserve buffer to the west provides a sufficient protection buffer to the Sowerbyella rhenana at this location.

Site 3 Ramaria araiospora ***:*** *All area below road 8-3E-35.4 within this unit has been flagged and is now outside of the proposed action. This area along with the adjacent riparian buffer provides a sufficient protection buffer to the Ramaria araiospora at this location.*

Unit D

Recommendations

Two Sowerbyella rhenana (S&M-B), one Ramaria araiospora (S&M-B) and two Ramaria stunzii (S&M-B) were found during the fall 2000 fungi surveys of this unit and one Spathularia flavida (S&M-B) was found during a spring 2001 visit. Due to the high likelihood that the Sowerbyella rhenana, Ramaria araiospora, Ramaria stunzii and Spathularia flavida identified at this site along with their habitat will be adversely impacted by the planned activities it is recommended that a protection buffer sufficient to protect each site be established.

Actions

The Ramaria araiospora located in the northern portion of this unit was found to be well protected within a riparian reserve. No further protection was given to this site.

Site 1 Ramaria stunzii : The exact location of this fungi could not be relocated. This site did not receive a protection buffer.

Site 1 & 2 Sowerbyella rhenana, site 2 Ramaria stunzii and the Spathularia flavida site were all included within the same buffer. Due to the steep topography of the area, this buffer was much larger than other fungi buffers in adjacent units of this timber sale. The buffer extends approximately 200' to 300' below and 150' to 200' above each site, providing a sufficient buffer to protect all sites.

**The following is from the Supplemental Biological Evaluation written on September 2002*

"Due to conflicts caused by the northern most Ramaria araiospora buffer and a proposed road to be constructed at th site, a re-evaluation and field inspection of the Ramaria araiospora buffer was conducted on 09/23/02. Although the proposed road intersects and crosses the northern most portion of this fungi buffer, it was determined that the exact road location and subsequent construction would not pose a significant threat to the Ramaria araiospora population this site."

Evidence of buffer success *- This can not be determined until after the proposed action has taken place. It has been documented in a 2001 study by Dr Lorelei Norvell "The Douglas-fir epigeous ectomycorrizal basidiomycete community in western North American Spotted Owl forest" that a 20 meter (60 feet) radius buffer of standing green trees is a sufficient buffer to protect an epigeous (growing/fruiting on the surface) fungi population. All of the protection buffers established in the project area are much larger than what is considered necessary by this most resent study.*

Unlikely all species found *-"Botanical inventories for fungi were completed in the fall of 1997 and 2000 using established survey methods and the standard protocols for survey and manage component 2 and Protection Buffer fungi species. The standard protocols used include Survey Protocols for Survey and Manage Fungi (September 1997)." Surveys to established protocols were completed It is important to note that some very large areas were buffered out of the project area due to their topography to protect S&M fungi buffers. As far as other S&M species like lichens, bryophytes and vascular plants, surveys were also conducted to protocols. It is possible that something went undetected, however, the S&M species that might inhabit the project area are likely to be associated with riparian areas and these area are buffered.*

Proposed action would result in increased fragmentation of habitat for T & E species, notably, spotted owl, Chinook & steelhead.
The Northwest Forest Plan specifically addresses fragmentation as a concern. As such a systems (network) of reserves were designed to protect late-successional forest species (including the Northern Spotted Owl), to protect relatively intact habitat and to promote the regeneration of late successional forest habitat.

Prior to the forest plan fragmentation was the norm. The spotted owl was listed as a threatened species in response to widespread habitat loss including fragmentation.

The Sinker Swim proposed timber sale has been specifically designed to avoid further fragmentation while providing the necessary tree densities to promote late successional habitat features and promote the elements necessary for species such as the spotted owl.

None of the proposed units are located in close proximity to chinook or steelhead habitat. In the Sinker Creek subwatershed the nearest unit to steelhead habitat is approximately 3 miles upstream. No chinook or steelhead exist in the Fish Creek or Little Sinker Creek subwatersheds. The nearest unit in those subwatersheds to chinook or steelhead habitat is approximately 1 mile upstream (from the Little North Santiam). No fragmentation of chinook or steelhead habitat would occur.

EA does not disclose survey protocols for Red Tree Vole or Mollusk surveys. S & M species that may have gone undetected are likely to be adversely affected.
Protocols for Red Tree Voles & mollusks are identified on page 29 of the EA.
***Undetected S&M Species**-Response-"Botanical inventories for fungi were completed in the fall of 1997 and 2000 using established survey methods and the standard protocols for survey and manage component 2 and Protection Buffer fungi species. The standard protocols used include Survey Protocols for Survey and Manage Fungi (September 1997)." Due to the nature of fungi and their non-regular fruiting, it is likely we didn't find every site inhabited by a S&M fungi mycelium. It is important to note that some very large areas were buffered out of the project area due to their topography to protect S&M fungi buffers. As far as other S&M species like lichens, bryophytes and vascular plants, surveys were also conducted to protocols. It is possible that something went undetected, however, the S&M species that might inhabit the project area are likely to be associated with riparian areas and these area are buffered.*

EA does not disclose if surveys were completed for other "category 2" S&M species that may exist in the planning area. The project must be halted until surveys have been completed.
Surveys for S&M category 2 species -- Surveys for S&M species from all categories have been conducted in spring summer and fall of 1997 and 2001, and in the summer of 1999. Botanical inventories for fungi were completed in the fall of 1997 and 2000 using established survey methods and the standard protocols for survey and manage component 2 and Protection Buffer fungi species. The standard protocols used include Survey Protocols for Survey and Manage Fungi (September 1997).

BLM does not indicate whether any Roadless Areas are present in the watershed.
There are no BLM roadless areas in the Little North Santiam watershed.

EA does not acknowledge the presence of Rosgen type Aa+ in the project area. BLM claims that the proposed action is unlikely to alter stream channel conditions but does not specify what measures would prevent this. Nor does the agency prohibit harvesting in type Aa+ channels.
The conclusion that the proposal is unlikely to alter stream channel conditions is supported in the Environmental Effects section of the EA, summarized on page 38-39, and explained in greater detail in the water section of the report that follows.

*Its true that the Northwest Forest Plan does not prohibit harvesting within the riparian reserve adjacent to Aa+ channel types: treatments within reserves are allowed if they meet ACS objectives. However, in this proposal, all areas considered landslide prone were excluded from treatment, as indicated on page 38. Nevertheless, it should be noted that there are numerous authorities on fisheries in the Pacific Northwest who believe that landslide prone areas adjacent to streams are exactly the areas that **should** be treated to promote the growth of larger diameter trees. These areas are considered important sources for contributing large wood downstream in the event of a debris torrent.*

EA does not specify the amount of board feet to be removed from Riparian Reserves making it impossible to determine if extraction will meet the objectives of the ACS.
The EA treated the board foot volume of trees removed from the Riparian Reserves to be a by-product of the thinning treatment. The Riparian Reserves were marked based upon the impacts described in the EA, not based

upon some predetermined amount of volume to be removed. Forty MBF will be removed from the Riparian Reserves.

Riparian Reserves in Sections 27, 34 & 35 are unmapped in the EA making it impossible for public & decision makers to understand effects of the sale on the reserves.
Riparian Reserves are not designated by lines on maps such as Late Successional Reserves are, but designated by description. For non-fish bearing streams Riparian Reserves are defined as the stream and the area on each side of the stream extending from the edges of the active stream channel to a distance equal to the height of one site-potential tree. Specific reserve widths for each unit are given in table 1 on page 9 of the EA.

There is no scientific evidence to show that by clearing some trees, some smaller trees will be able to grow in diameter.
The benefits of thinning are one of the basic tenants of not just forestry, but basically any form of population control and management. Foresters thin the trees in the forest just as gardeners thin the carrots in their gardens when overcrowded conditions reduce the ability of all to reach their potential. Most forestry textbooks have numerous examples of scientific research that residual trees respond to increased growing space by growing.

Reducing canopy closure from 78-85% to 40% in a riparian reserve would not meet objective 1 of the ACS.
Major contributors to watershed and landscape scale diversity and complexity (ACS Objective #1) are the structural elements and species diversity of the existing vegetation. Small canopy gaps, understory development of both conifers and brush species, large diameter trees, rough crowned open grown trees, dead wood habitat, and multiple species are some of the specific elements. A landscape characterized by such diversity is a more resilient one, more able to persist large scale disturbances. It also provides stream channel and aquatic protection as well as habitat for many terrestrial species. That is why the Little North Santiam Watershed Analysis recommends silvicultural practices such as variable density commercial thinning as a tool to restore this type of diversity to the Riparian Reserve system of the watershed. It recommends thinning portions of Riparian Reserves to a minimum residual crown closure of anywhere between 40 to 50 percent. This level will allow enough light for understory tree and brush initiation and development, while giving some horizontal spacing diversity to the overstory and encouraging the development of trees characteristic of those found in old-growth stands.

The thinning prescription for the portion of Riparian Reserve to be thinned in Section 27 is guided by the parameters as set out in the watershed analysis. Approximately 12 to 15 percent of the thinned Riparian Reserve would actually exhibit 40 percent crown closure following thinning. The remaining acres would maintain between 50 to 85 percent crown closure. The thinning, as described, is a means of attaining ASCO # 1 by restoring elements of landscape diversity and complexity while ensuring protection of the aquatic system.

It is unclear what is meant by the paragraphs on Sections 34 & 35 of the EA at page 26. How will logging in this mature and old growth forest area meet the objectives of the ACS?
The paragraph in question clearly states that it is referring to the Riparian Reserves within these Sections. There is no logging planned within the Riparian Reserves of either Section 34 or 35.

The EA admits that the reserves lack the attributes because of commercial thinning thirty-two years ago and it seems unlikely that an additional thinning will have different results.

The thinnings done during the 1970's were designed to promote growth upon Douglas fir trees at the expense of all other species. At the time it was felt that this was the best was to achieve that greatest amount of high quality timber. Thinnings being designed and implemented now are designed to maximize species diversity. Minor species and hardwoods are selected for retention over Douglas fir, trees with defects are retained, snags are retained where possible or created after operations. These steps help to develop the characteristics of an older forest. There are numerous studies being done by various researchers on the merits of thinning for diversity. The results are showing that diversity can indeed be increased by thinning prescriptions tailored to maintaining, enhancing, and creating unique niches from simplified mid-seral stands.

BLM fails to include all intermittent streams in the riparian reserve. It can be inferred that intermittent streams are not protected as riparian reserves. BLM does not identify seeps and springs, fails to provide a detailed map of the watershed identifying wetlands, intermittent streams, seeps, springs and the riparian reserves making it impossible for the public to ascertain the effects of the project.
BLM does provide a map of the project area that includes all known streams, permanent and intermittent. Several wetlands less than one acre in size were located during field examinations. These wet areas were buffered by one tree height, although the NFP only calls for buffering to the extent of riparian vegetation (NFP C-31). BLM specifically requested locations of springs and other areas of potential environmental effects in the scoping letter of January 2000. NEDC's comment letter implies that they are aware of intermittent streams or other water resources that BLM failed to protect. If this is indeed the case, NEDC would be remiss in failing to provide this information to BLM so that it can be adequately protected. If NEDC has no such knowledge, then their accusation is without merit. There are approximately 23,000 feet of stream within the project area, this equates to roughly 220 acres of riparian reserve. Of this total, thinning is to be done on four acres. That makes the other 216 acres a no harvest zones.

BLM fails to provide a two site tree riparian reserve for all fish bearing streams. The fish bearing stream in Unit A is buffered by only 220 feet.
The fish bearing stream in the vicinity of Unit A is Little Sinker Creek. At its closest point, Little Sinker Creek is approximately 600 feet away from Unit A. There are other streams adjacent to Unit A that have a 220 foot buffer, these streams are non-fish bearing.

Since riparian reserves are designed to be protected areas, any action taken within them is significant and merit an EIS.
The Northwest Forest Plan specifically calls for thinning within Riparian Reserves on page C-32: "Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives."

Sinker Creek is perilously close to Oregon's legal limits of water quality. BLM fails to adequately consider how the proposed action may push the stream beyond the legal standards.
Stream temperature is the only parameter currently known to be occasionally outside of legal limits in Sinker Creek. As stated in the EA (pg. 41), "Forest density and hence shading immediately adjacent to the mainstem of both Sinker Creek and Big Creek would be left unaltered under this proposal."

Stream temperatures in Sinker Creek exceeded the Oregon standards for several days in 1998. Reducing canopy closure in riparian reserves may increase stream temperatures beyond legal temperatures. BLM fails to assess

dissolved oxygen data in Sinker Creek. Considering Sinker Creek's already high temperature, any excess organic material could significantly affect DO.
The Proposed Alternative lies within the Little Sinker Creek drainage, not Sinker Creek. Little Sinker Creek remained below 17.8° C when monitored in 2001. Additionally, there is no proposal to add "excess organic material" to any stream. Treatments would take place within close proximity to the stream in order to provide stream structure (logs and large woody debris) for aquatic species (page 10, EA).

BLM must consider the additional turbidity resulting from this action on an area that already has reduced water clarity.
An increase to 0.04 tons/acre/year following broadcast burning is approximately 2 percent of mean annual yields and, given the inherent variability in sediment yield measurements, is not a measurable effect (EA, pg 45). A non-measurable effect would also be non-measurable using a turbidity meter and thus Oregon State water quality standards (<10% increase in turbidity relative to upstream control point) would be met.

BLM should delay consideration of this sale until a TMDL is set so the agency can be sure that standards will not be violated. It appears that BLM conveniently scheduled this sale just before the TMDL's could possibly prohibit the sale.
There is no legal basis for the BLM to delay consideration of management actions in response to TMDL timelines. The BLM is an active partner with the DEQ and it is anticipated that this proposal will be in full compliance with all direction provided under the TMDL when it is issued.

The EA inadequately addresses wetland effects of the proposed action.
During extensive field examinations several wetlands less than one acre in size were located. These wetlands were buffered by one tree height (NFP only requires a buffer of the riparian vegetation). Due to the network of extensive riparian reserves, no effect upon the wetlands is anticipated.

BLM fails to adequately consider the effect of the WAR value on public resources.
The analysis found low sensitivity to increases in peak flows and low potential risks for aquatic resources for normal storm events. It found an "indeterminate" risk for "unusual" peak flow events associated with a 2-yr+ and greater return interval storm event.

The reader was referred to the watershed analysis for information on the flood history of the basin:

"None of the tributary channels in this watershed have been gaged. Streamflow characteristics of the LNSR, which has a gage near its confluence with the North Santiam, are described in the watershed analysis (LNSWA 1997) (EA, pg.20)."

The EA fails to fully disclose cumulative effects of timber harvest and road development on water quality, forest health, wildlife habitat, noxious weeds, cultural resources and other resources.

The EA discusses the cumulative effects of the proposed action and the Fawn Creek timber sale (sold) and anticipated potential timber harvest on non-federal lands on late successional habitat. See page 56 of the EA:

<u>Cumulative effects on noxious weeds</u>– The following is the general wording found in current botanical BE, written in September 2001. "The noxious weeds identified during the botanical surveys of the project area are all common components of the roadside plant community. These weed species are commonly found throughout western

Oregon, tending to occupy areas of high light and ground disturbance (i.e. road corridors and fields). An increase in the overall number of these species will likely occur immediately following any ground disturbing or light increasing activity associated with the planned timber sale. In time these species will again return to their low levels as the native vegetation returns and reoccupies these areas." Due to the nature and method that noxious weeds spread, it is not possible to stop or prevent their encroachment into areas that have had soil/ground disturbance due to man or nature.

BLM does not consider the impact other actions occurring on adjacent BLM land, actions on private land, or previous conditions in the watershed as required by NEPA.
All known impacts have been considered. In general, recent projects such as Fawn Creek Timber Sale, which have been committed but may not have actually been completed on the ground, are assumed to have been completed and the full measure of their impacts considered. Activities on private ground are considered if known, but often private land owners are reluctant to divulge their planned or future planned activities with the Government.

BLM completely fails to include any mention of recent BLM projects in the watershed.
Although they were not mentioned by name, the effects or conditions resulting from other projects were included in this analysis as part of the existing environment.

Comments from other sources

No patch cutting as too many clearcuts in the area already.
Patch cuttings are being implemented in this sale for two different reasons. Three patch cuts of 1/2, 1, and 11/2 acres in size are to control laminated root rot by cutting Douglas-fir which are susceptible to mortality from laminated root rot and replanting with red alder which are immune. Maintenance of red alder plantations on the infected sites will allow laminated root rot disease in infected Douglas-fir roots to die over time.

One one acre group selection and two one acre low retentions of 10 and 20 trees per acre are designed to allow for new cohorts of conifers to be established in order to initiate uneven-aged management. These treatments are very different than the other "clearcuts" in the area because of their small size and purpose.

No new road construction as road densities in the area are already too high.
Although new road construction is proposed by this project, all of these roadways will be decommissioned following timber harvest activities. In addition, this project proposes the decommissioning or blocking of approximately 17,800 feet of existing road. Overall, following the completion of this proposal, road densities will decrease in this area.

Project cuts some of the last remaining late-successional forest in the area.
The Northwest Forest Plan (NFP) requires agencies to retain late-successional forest patches in fifth-field watersheds in which federal forest lands are comprised of fifteen percent or less late-successional forest. (NFP, page C-44) The Little North Santiam River watershed contains 46,576 forested federal acres. Of this total, there are 24,207 acres of Late-Successional Forest (LSF) land within reserves, including LSR's riparian reserves, administratively withdrawn and congressionally reserves. This means 52% of the federally managed acres within the watershed are LSF and are restricted from harvest.

No biological reason to cut mature stands in Secs. 34 & 35 as they are already healthy and diverse.
The mature stands have several infections of laminated root rot; treatments within the infected areas are designed to replace susceptible to disease species (Douglas-fir) with immune species (red alder). Partial cuts and thinnings will increase species and structural diversity by increasing proportion of western hemlock, maintaining Pacific madrone trees and retention of smaller diameter classes in single-tree selections.

Partial cut prescription takes stocking down to low (30 TPA) need to leave at least 60 TPA.
Stocking is being lowered to 30 trees per acre in stands that are currently about 60 trees per acre to allow regeneration of new cohorts of conifers to initiate uneven-aged management. The 60 TPA stockings are fully stocked stands that do not allow enough light to reach the forest floor for survival of planted trees. Uneven-aged management is being initiated so that forested conditions can be maintained for water quality.

Project likely to adversely affect NSO.
Although the ESA effect call is "may affect, likely to adversely affect" the spotted owl due to habitat modification, it must be noted that spotted owls were not actually detected in the project area during the 2002 survey season. The project is in conformance with Section 7 consultation with the US Fish and Wildlife Service.

Project will increase compaction, erosion and decrease soil productivity.
While soil compaction and erosion will increase with the implementation of this project, the additional amount will be within the guidelines of the current Salem District RMP (i.e., less than 10% of each harvest unit will be impacted by s roads and landings). This soil disturbance will result in a 1% to 5% loss in soil productivity (the variability of this productivity loss is dependent upon season of timber harvest and equipment utilized). In order to minimize this productivity loss, design features outlined in Section 2.25 of the Sinker Swim EA will be implemented.

Dropping protection for S&M species per 2001 ROD reduces protection for older forests.
This might be true if species that were dropped were or are within the proposed project area. If these species were dropped before surveys were initiated then those species would not have been surveyed for. If species that were dropped after surveys were completed, as with Gyromitra infula a S&M 3-4 categoryB in Unit-A, the buffer that was installed is left in place. Allotropa virgata a vascular plant species and an S&M 1,2 at the time of the survey(dropped as an S&M species) was found within the boundaries of unit-G. This unit has been dropped from consideration and is no longer part of the proposed project area. The reason the buffers are left in place is because these species are already on or are being considered for the Special Status Species program. Known sites for these species will be managed until their disposition is clarified in the Special Status Species consideration.